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WHAT ARE MEDICINES; WHAT THE DISTINCTIONS BETWEEN
FOOD AND MEDICINES; THEIR CLASSIFICATION FOR
THERAPEUTIC PURPOSES; ÆTIOLOGY.

A LECTURE IN THE REGULAR COURSE ON PRACTICAL MEDICINE, IN
CHICAGO MEDICAL COLLEGE, BY N. S. DAVIS, M.D.

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HAVING in the preceding lectures endeavored to explain, as familiarly as possible, the nature and conditions of health and disease in the living human body, I must now direct your attention to some thoughts on the nature and *modus operandi* of medicines. Remedial agents and influences properly embrace everything that can be made useful in alleviating or curing disease.

In this sense, an encouraging word or cheerful look is as much a remedial agent as a pill or a powder from the apothecary. It is my intention, however, to limit your attention during the present hour to those material agents ordinarily styled medicines, reserving the consideration of other influences for another occasion. Medicines, in this restricted sense, are such

agents as are capable of being introduced into the living system, and exerting a modifying influence over one or more of the properties or functions of the body, without being capable of assimilation or addition, as nutritive matter, to any of the tissues. They may be introduced into the system through the digestive organs, through the lungs by inhalation, through the skin by absorption, through the subcutaneous tissue by hypodermic injections, and by injection directly into the blood-vessels. The first is the more common and practically important method. But in whatever way the medicine is given it enters the mass of the blood generally unchanged in its composition, and induces its effects by passing with the blood into contact with the various structures of the

body, and by such contact modifying either the properties or molecular changes, or both, in one or more of these structures. As a general rule, they are also sooner or later eliminated from the blood by some of the excretory organs in so nearly the same condition as when they were introduced, that they can be readily detected by the proper chemical tests. The apparent exceptions to these rules are such alkalies and alkaline earths as are capable of uniting directly with and neutralizing acids in the stomach before time for absorption.

Even in these cases, however, the resulting compound is absorbed, and after passing the round of the circulation, is eliminated. The real exceptions are those agents that act directly on the structures to which they are applied, as in the case of sinapisms, blisters, caustics, etc. The disposition on the part of many writers to call all the hydro-carbonaceous substances respiratory food, and those substances that simply retard the process of disintegration *indirect* food, has caused some confusion in regard to the distinction between food and medicine. It seems to me, however, that there are two plain and essential points of difference between these two classes of substances.

The first is, that food proper never passes through the digestive and assimilative organs without important changes in composition and form, and never re-appears in the excretions from either skin, kidneys, or lungs, in the same form as it entered the system. For instance, the principal proximate elements of our food are starch, gum, sugar or glucose, fat or oils, gluten, casein, the fibrin and albumen of flesh, and the inorganic salts with which

they are united. If you note carefully the successive changes of the food into chyme, chyle, lacteal fluid, etc., you will find all these proximate elements radically changed before they reach the mass of the arterial blood. And you will seek in vain for any one of them in the eliminations from the true excretory organs of the body. This is directly opposite to what I have represented to be the behavior of medicine in passing through the system.

The second distinction is, that food taken in a healthy state of the system, always satiates the appetite for the time being, and that too in about the same quantity without regard to the length of time it may have been used. For instance, if a person eats bread three times a day for twenty years, he is just as readily satisfied at the end of the time as he was at the beginning. Natural appetite or hunger is simply the demand for material to supply the waste of tissue, and every substance capable of assimilation, when taken, will satisfy that demand; and with that satisfaction ceases, for the time being, all relish for more.

No such effect, however, will follow from the taking of materials that cannot be assimilated and added to the tissues by nutrition. Hence, daily observation shows that all those excitants, like the active principles of tea and coffee, and the anæsthetics, or retarders of tissue disintegration or waste, like alcohol, ether, chloroform, tobacco, etc., which have been classed by some as *indirect* food, have no power to satisfy except by mechanical fullness of the stomach, or by such a degree of stupor or anæsthesia as renders the individual for the time oblivious to further impressions.

And all these articles, instead of producing the same effects in the same quantities for any number of years, as is the case with real food, invariably create a steadily increasing demand for more. You see the young lady who sipped daintily a cup of drink at her breakfast, containing a tablespoonful of tea or coffee diluted with milk and water, ten or fifteen years later in life taking two cups at the same meal, each filled, not with milk and water flavored with a tablespoonful of tea, but with a strong infusion of tea or coffee.

In like manner, you see the young man at 18 years taking but one cigar and one glass of beer or wine per day; at 30 years consuming five or six cigars and as many drinks of beer, with now and then a glass of distilled spirits; and at 40 years he consumes a dozen cigars a day, and the number of drinks is limited only by the quantity required to induce intoxication. It is true that most, if not all, of these agents used habitually induce such a morbid condition of the stomach as to impair or destroy the appetite for proper food, but not for themselves. On the contrary, the latter grows stronger and stronger, more and more insatiable, until it too often becomes the ruling despot of the individual's life.

Having thus defined what is meant by medicines, as distinguished from food or aliments, I will divide the whole into two great classes, as follows:

First, Those substances that are capable, by their presence in the blood, of modifying the properties common to all the tissues; in such a way as to produce a perceptible change in one or more of the general processes taking place in the living

body. These may be called general remedies, because in modifying the general processes of nutrition, disintegration, and calorification, they necessarily influence in some degree all the functions of the animal economy.

Second, Those substances which, though introduced into the mass of the blood, exhibit an affinity for, or special action on, some particular organ or group of organs, and hence may be termed local remedies.

The remedies included in the first class may be arranged in four groups, called general stimulants, or excitants; general tonics; general sedatives; and general alteratives.

The first group embraces those substances that increase or exalt the susceptibility of the tissues simply, as tea, coffee, caloric, oxygen, etc.

The second includes such agents as are capable of increasing the play of vital affinity, either alone or in connection with a moderate increase of susceptibility, thereby giving an increased tonicity to the structures of the body, and generally an increase in the evolution of caloric. To this group belong the preparations of iron, the mineral acids, guaiac, cantharides, phosphorus, many of the bitter vegetable alkaloids, etc.

The third group embraces those agents that are capable of influencing either the susceptibility, or the vital affinity, or both, in the opposite direction from either of the preceding groups. That is, they either depress the susceptibility or impair the play of vital affinity, or both at the same time. Consequently they diminish the molecular changes constituting nutrition, disintegration and secretion, and diminish both the evolution of caloric

and the capacity to receive impressions. To this group belong the hydrocyanic and carbonic acids, the alkalis, the bromides, alcohol, ether, chloroform, etc. Some of you may be surprised to see the alcoholic liquids included among the general sedatives. But all the experiments with alcohol, from the days of Dr. Prout to the present time, have shown that while present in the blood it directly diminishes the temperature of the tissues, retards the atomic changes and the amount of eliminations, and diminishes the general susceptibility. If these effects do not constitute it a general organic sedative, it would be difficult to conceive what should be ranked as such.

The fourth group embraces such agents as are capable of modifying the properties of the tissues in a manner different from that of simple increase or diminution, and hence they are called alteratives. To this group belong iodine, mercury, arsenic, and their several preparations, together with those agents that are supposed to neutralize poisons in the blood, or to prevent what are called zymotic changes in that fluid, such as the sulphites, permanganates, carbolic acid, etc.

These definitions are sufficient to give you a correct idea of what I mean by *general* remedies.

They produce their effects by acting on those elementary properties that are common to all the structures of the body. When they increase or exalt these properties, they are stimulants and tonics; when they impair or depress, they are sedatives; when they modify the properties different from either increase or diminution, they are alteratives.

But much the larger part of the remedies in the works on *materia medica* belong to the second class, called local remedies. Quite a number even of those I have enumerated as general remedies will be found to possess, in addition, a direct local influence on some structure or organ. Thus alcohol, by its presence in the blood, not only retards molecular changes throughout all the tissues as a general remedy, but like all true anæsthetics, it also diminishes locally the sensibility of the cerebro-spinal nervous centres. So, too, the tea and coffee, which have been ranked as general excitants, are capable of exerting a special local influence over certain portions of the nervous system, inducing wakefulness, palpitations, muscular tremors, etc.

The group of remedies usually styled narcotics or soporifics act more exclusively upon the brain and nervous centres. They directly diminish the sensibility of the nerve structures, and thereby relieve pain and favor sleep. In large doses they are capable of so completely suspending cerebral sensibility as to cause coma and death. To this group belong opium, conium, hyoscyamus, lactuca, chloral, etc. Though all these agents diminish cerebral sensibility, they do not all act alike. Thus opium and its preparations cause dilatation of the smaller vessels of the nervous centres, and consequently increased accumulation of blood; while hyoscyamus, belladonna and stramonii cause contraction of the vessels, and thereby lessen the quantity of blood in the part. The action of the former is accompanied by contraction of the pupils of the eyes, the latter by dilatation. Although the narcotics act primarily on

the nervous tissues, yet, by diminishing nerve sensibility, they secondarily diminish the influence of the nervous over the muscular structures, and thereby impair the respiratory movements, circulation, the peristaltic motion of the bowels, and to some extent the action of muscles of voluntary motion.

Another class of agents, when introduced into the system, are capable of so modifying the circulation and properties in the cutaneous tissue as to cause a marked increase in the amount of exhalation from the surface, and you call them diaphoretics or sudorifics. Another class exert a similar influence on the mucous membrane of the respiratory passages, and you call them expectorants. Another class so influence the kidneys as to increase the quantity of urine secreted in a given time, and they are called diuretics. Still another class so modify the condition of the mucous membrane of the stomach and bowels, and quicken the peristaltic motion, as to result in increased gastric and intestinal discharges, and they are called emetics and cathartics. The last four groups of remedies so alter the play of affinity in the organs on which they act as to increase secretory action.

But there are remedies acting on the several organs in the opposite direction; that is, in such a manner as to diminish secretion, and they are called astringents. Again, we have remedies of more or less value that do not directly modify either the structure or function of any part of the system, but which exert a purely chemical or mechanical influence. Thus you may give acids to neutralize an excess of alkalies, either in the stomach or the blood; or alkali-

lies to neutralize an excess of acids. Pepsin, hydrochloric acid, and many other substances may be used as gastric solvents when the natural gastric juice is deficient.

There are also remedies of great value that do not properly belong either to the group of general organic sedatives or to the local narcotics. When properly administered they are capable of either diminishing the action of the heart and arteries, or of lessening the excitability of the cerebro-spinal and vaso-motor nervous centres. Those that appear to directly diminish the action of the heart and arteries, as the *veratrum viride*, *aconite*, *digitalis*, *cold*, and *venesection*, may be called vascular sedatives. Those that more prominently diminish the excitability of certain portions of the nervous apparatus, as the *gelsemium*, *calabar bean*, *ergot*, *cimicifuga*, etc., may be styled nervous sedatives.

In thus glancing rapidly over a therapeutic arrangement of remedial agents, it is no part of my purpose to enter upon the discussion of the *modus operandi* of medicines, but simply to give an outline of such a classification as would correspond with the views expressed in the preceding lectures concerning the nature and varieties of disease.

If an accurate knowledge of physiology, or the conditions of function and structure which constitute health, is essential as a starting-point for acquiring a knowledge of disease, so is a thorough study of the nature and *modus operandi* of medicines essential as a preparation for their intelligent application in the treatment of disease.

It is to be hoped, therefore, that all

of you have given due attention to this branch of medical science during the earlier part of your studies.

If not, I cannot too strongly urge upon you the importance of early supplying the deficiency.

To note down formulas or prescriptions and apply them in the treatment of particular diseases, simply because they were recommended by your teachers, without an accurate knowledge of each of their constituents and the special effect it is expected to produce, is to exhibit a blind dependence on authority degrading to the practitioner and dangerous to his patients. The conditions essential for the rational practice of medicine are: a clear conception of the morbid conditions affecting the patient, an equally reliable knowledge of the nature and action of medicines, and the discipline of mind necessary for accurately adjusting the latter to the fulfillment of the indications presented by the former.

The general indications for the employment of remedial agents have been variously classified by different writers. The most simple and convenient arrangement is to consider first, those having for their object the removal of the cause or causes; second, those arising from the essential pathology of the disease; and third, those afforded by the secondary symptoms or consequences of the primary pathological condition.

There are many morbid conditions which speedily cease by simply removing the causes that have induced them. There are others which, when fairly commenced, continue, though generally with less activity, after the causes have wholly ceased to act. Hence, a correct knowledge of the

nature and *modus operandi* of the causes capable of giving rise to particular forms of disease, is of great importance both to the physician and the community. Such knowledge not only enables the physician to treat individual cases of disease more successfully, but it enables both individuals and communities to adopt such sanitary and hygienic measures as to greatly lessen the prevalence and fatality of many of the most important diseases to which our race is subject.

Ætiology, therefore, affords the only reliable foundation for the sanitary improvement of cities, populous towns, and even rural districts. To this department of medical science the world is indebted for all the advantages it derives from systems of sewerage, scavenging, water supply, modes of ventilation, improved construction of dwellings, etc.

And yet there is no field in which more careful and patient labor is needed, or which will yield the laborer a richer reward. For though very much has been accomplished in ascertaining the special circumstances which favor the development of many morbid causes, the laws that govern their diffusion, and their influence on the human system, yet but little progress has been made in the work of isolating and studying the nature, composition and properties of the several causes themselves. What has already been accomplished affords a broad foundation for most important sanitary improvements, both of an individual and municipal character; but what remains to be done in this department would add much to this foundation, and still more to our success in endeavoring to remove the

causes acting injuriously on our individual patients. Diseases are often produced by the joint action of several causes, some of which act with feeble intensity but continuously through considerable periods of time. Others act more abruptly and with greater intensity. The first usually produce their effects slowly, merely modifying slightly the properties of the tissues, or the functions of one or more organs, without at once developing the phenomena of active morbid action, and hence are called remote or predisposing causes. The second, acting with more intensity, and more directly developing marked symptoms of disease, are called exciting causes. The division, however, is an artificial one, as nearly all the predisposing causes become direct exciting ones by simply increasing their intensity or prolonging their duration. A more natural division of causes would be into external and internal. The first embracing all agents and influences originating exterior to the living body, and capable of making an unnatural impression upon any of its parts, and the second such as originate within the living organization. The external causes are resolvable into two classes, viz.: such as consist in changes either in composition, quality or quantity, of the natural ingesta, including under this latter term the air, water and food, and such as consist of agents not belonging to the natural ingesta, but capable of being received into the system through the same channels. I need hardly remind you that the air we breathe is composed of nitrogen, oxygen, ozone or active oxygen, carbonic acid, caloric, and electricity, and that these constituents are subject to almost constant variations. When

such variations do not exceed certain limits they are consistent with a continuance of health in the animal economy; but when they are too abrupt or extreme, they are productive of morbid conditions often of the most dangerous character. The atmospheric elements most subject to such extreme changes are the ozone, caloric and electricity.

The most superficial observer knows that there is habitually a wide difference between the character of diseases prevailing during the high temperature of summer and the low temperature of winter. The influence of caloric in increasing the susceptibility and lessening the vital affinity or tonicity of living structures is as apparent as its power to lessen the affinity by which the atoms of inorganic matter are held together. Many facts point to an intimate relation between extreme changes in the ozone, caloric, electricity and aqueous vapor of the atmosphere, and the prevalence of such diseases as influenza, catarrh, rheumatism, cholera, etc., and there is much need of further careful investigation in this direction.

The second division of the external causes of disease, consisting of agents not naturally entering into the composition of air, water, or food, but capable of being mixed with one or more of these, and imbibed into the system through the same channels, arise mostly from the disintegration or decay of dead organic matter, both animal and vegetable.

Hence, from a remote period in the history of medicine, they have been styled *miasms*. Idio-miasms, when the product of the decomposition of animal matter or animal excretions, and koino-miasms, when from the de-

composition of vegetable matter. Until a comparatively recent period, these deleterious products were very generally regarded as inorganic, gaseous, or chemical compounds, although so subtle and attenuated as to be ever eluding the best directed efforts of the chemist to isolate and examine them. By a few, however, like Copeland and Holland in Europe, and J. K. Mitchell in America, they were regarded as organic living germs, either vegetable or animal—fungi or animalculæ. And since the general use of the microscope in medical investigations, the tendency to regard all the deleterious products of the decomposition of organic matter as organized microscopic germs, capable of self-propagation, and free diffusion in connection with the aqueous vapor of the atmosphere, has greatly increased throughout all ranks of the profession. Still, there is very little agreement among the various observers, and the whole subject needs much more extended and patient investigation.

In all our researches with the microscope, concerning the nature of morbid causes, great care is required lest we mistake the mere products or results of morbid action for the causes. For instance, if we examine the surface of a sore on the skin, or of an ulcer in the mucous membrane of the mouth, and find it covered with fungi or vegetable germs, it does not necessarily follow that such fungi were the cause of the diseased spots in either place. Neither does it follow as a legitimate deduction that certain violent epidemic diseases, as cholera for example, arise from organic germs merely because such have been seen in the excretions. To furnish data for any legitimate deductions from this

class of observations, they must be made at the very incipient indications of disease, and repeated at the different stages of its progress, and after full recovery. Similar observations must also be made during the progress of other diseases affecting the same organs or structures. The first series of observations are necessary to determine whether the supposed germs are always present in a given disease, and whether present in all stages of its progress, or only at certain periods. The second series are necessary to determine whether they are peculiar to the one disease, or present in many and dissimilar diseases. One observer places a few specimens of cholera evacuations on the microscopic field, and observing certain organic germs, which, on keeping a certain length of time, develop into a species of fungus, and he straightway announces the discovery of the direct cause of cholera. Another places a specimen of the blood of a syphilitic patient on the microscopic field, and after patiently watching it for two or three days, a crop of living bodies make their appearance, and we have another grand pathological discovery.

But just as the literature of the profession has become well filled with the important discoveries, and the many practical applications of which they are capable, behold, some one else has also discovered that the special cholera fungus can be found as well in any serous intestinal evacuation, and that the so-called syphilitic germs are easily found in the blood of persons who never dreamed of having had that disease, either hereditary or acquired. It is thus that one set of investigators are constantly employed in correcting the errors of another

class, and our literature is kept full of contradictory statements.

Hasty generalization; or the deduction of important conclusions from imperfect and inadequate data, has ever been one of the greatest hindrances to genuine progress, in both the science and the art of medicine.

The second class of causes, those that originate in the living system, may be called mental and physical. That either deficient or excessive mental exercise, and either sudden or long-continued action of the emotions and passions, are capable of inducing morbid action in the physical structures of the body, is too well known to need illustration. That the physical processes of metamorphosis and disintegration may be so imperfect or perverted as to cause unnatural products to be returned into the blood, or that the secretory action of one or more secretory organs may be so perverted as to cause the secretion to be unnatural in quantity or quality, and thereby become a cause of irritation and derangement, is equally obvious. This simple and hasty glance at the subject of ætiology, will be sufficient to show you both the importance of the indication for removing the causes of disease, and the practical difficulties in the way of fulfilling it.

I stated that the second indication for the use of remedies in remedial practice was founded on the nature of the disease. For instance, if the nature of the disease is such as to present increased activity and excitement, it indicates the use of soothing and sedative remedies; if increased sensibility and suffering, either narcotics or anæsthetics; if impaired activity and relaxation, excitants and tonics; if perverted vital affinity, alteratives,

etc. I need not tell you that a very large part of the skill and success of the practitioner will depend on the clearness of his appreciation of the nature of the morbid actions involved in any given case, and the accuracy with which he adjusts the remedial agents to meet the indications afforded thereby.

The third indication was founded on the secondary effects of the primary disease, and the complications that supervene during its progress.

The several organs and functions of the human body are so intimately connected with, and dependent on, each other, that it is almost impossible to have disease invade one without soon causing disturbance in others. And there are few individuals who do not have a greater susceptibility in some organs than in others, and hence, when attacked by general diseases, such sensitiveness often becomes so increased as to constitute active local disease. And it often happens that the secondary affections become the most dangerous to the life of the patient. This is illustrated strikingly when any one of the principal excretory organs are involved.

Thus disease of the kidneys may be of such a nature as to prevent a proper elimination of urea, which, being retained in the blood, poisons the cerebro-spinal nervous system, producing convulsions, coma and death. Or valvular disease of the heart, by keeping up for a long time irregular circulation of the blood, causes general derangement of secretion, especially scantiness of urine and general dropsy.

The practitioner, therefore, should study carefully the mutual relation and dependencies of one function on

another, that he may be prepared not only to treat the secondary derangements when they occur, but to enable him often to anticipate their occurrence by appropriate preventive measures.

All details concerning ætiology, pathology, diagnosis and therapeutic

action of medicine will be given in connection with the consideration of particular diseases and groups of diseases, my present object being simply to give you such an outline as would challenge your attention, and systematize your thoughts in relation to these topics.

Clinical Reports.

CASES PRESENTED TO THE CLINICAL CLASS IN THE MEDICAL WARDS OF THE MERCY HOSPITAL, FEBRUARY 11 AND 12, 1875.

BY N. S. DAVIS, M.D., PROFESSOR OF CLINICAL MEDICINE, ETC.

CASE I.—PLEURO-PNEUMONIA.—
M. B—, aged thirty-five years, was admitted into the hospital February 8th, three days since, presenting an anxious expression of countenance; rather purplish flush on his cheeks; dryness of the lips; white coat on the tongue; pulse 110 per minute, moderately firm under the finger; respirations 40 per minute, short and quick; skin dry and temperature 102° F. He had a frequent, short, rather stifled cough, with scanty expectoration of tenacious mucus slightly tinged with blood. He complained of constant pain in the lower part of the right side of his chest, rendered very sharp and severe by coughing or attempting to take a full breath; his urine was scanty, bowels quiet, but no appetite and little thirst. Percussion indicated moderate dullness on the right side, extending from two to three

inches above the diaphragm, and over the same space auscultation afforded slight pleuritic friction, and sub-crepitant rale, with diminished expansion of that side by inspiration. The patient had been sick only two days before admission into the hospital. After the members of the class had sufficiently examined the patient, their attention was directed to the essential items of diagnosis and the indications for treatment.

The pain in the lower part of the right side of the chest, rendered severe and sharp by coughing; the character of the expectoration; and the physical signs elicited by percussion and auscultation, all point distinctly to the existence of pneumonia in the lower lobe of the right lung, and pleuritic inflammation in the corresponding part of the pleura.

The blood in the sputa; the sub-

crepitant instead of the fine crepitant rale; and the imperfect inflation of that lung by inspiration, with decided dullness on percussion, indicated pneumonic exudation, constituting the second stage of the inflammatory process. During the three days that have elapsed since the patient came under observation, the dullness on percussion has extended higher, especially over the posterior part of that side, and the friction which was at first distinct has ceased to be audible; circumstances that indicate a moderate serous effusion from the inflamed surface of the pleura. We have as the present pathological conditions, a pleuro-pneumonia in the second stage of progress, in a patient whose blood is below the normal plasticity, and whose vital resistance to disease is impaired. The two last-mentioned conditions are shown by the comparative low temperature and dingy color of the surface; the quick and weak pulse; a frequency of respiration and sense of oppression in the chest out of proportion to the extent of the local inflammation; and the appearance of a large vesicle of pemphigus on the back of one hand. This apparent impairment of constitutional vigor may be owing in part to the effects of a severe attack of pneumonia which he suffered while in Europe a few years since, and in part to the effects of exposure to the unusually protracted and severe cold of our present winter.

Treatment.—Immediately after the patient came into the hospital a sinapism was applied to the right side long enough to induce some redness of the surface, and then the whole right half of the chest covered with emollient poultices which are still con-

tinued. He was also directed to take one teaspoonful of the following mixture every three hours:

R—Ammo. Hydrochlo.	3 iii.
Ant. et. Pot. Tart.	2 grs.
Morph. Sulph.	3 grs.
Glycyrrhizæ Syrupi.	℥ iv.—Mix.

The next day (yesterday) he was suffering less pain in his side, but his breathing was more short and labored; lips and face more purple; pulse quicker and weaker; and the area of dullness on percussion over the lateral part of the right side of the chest increased. The doses of the anodyne expectorant mixture were directed to be continued only every four hours, and a powder containing two grains of sulphate of quinia, one of calomel, and one-sixth of a grain of sulphate of morphia, between. It was thought the quinine would check the further exudation by imparting more tone or contraction to the pulmonary vessels, and by exerting a general tonic influence. This treatment has been continued until to-day (Feb. 11th), accompanied by a steady improvement in the condition of the patient; and yet the present examination shows indications of much general weakness, dullness, and sub-mucous rhonchus over the affected side, and some blood in the expectoration. The abdomen is moderately distended with tympanitis, and, as there has been no intestinal evacuation during the last three days, he was directed to have castor oil, half an ounce, followed, if necessary, in three hours by an enema sufficient to move the bowels. The powders of quinine, two grains, and morphia, one-sixth of a grain, without the calomel, were continued every four hours, but the hydrochlorate of ammonia mixture was discontinued, and

the following formula substituted therefor:

R—Liquor Ammo. Acetatis,	℥ ii.
Syrup Ipecac	℥ ss.
Tinct. Opii et Camph.	℥ iss.
Carb. Ammo.	℥ iss.

Mix. Dose, one teaspoonful, or fluid drachm every four hours, alternating with the powders.

The patient was to have at short and regular intervals milk and meat broths for nourishment, and continuance of the emollient applications over the chest.*

CASE II. HÆMOPTYSIS FOLLOWED BY CASEOUS DEGENERATION.

Mr. C.— is a laborer, aged about 28 years, medium size, and naturally strong and robust. He has been in the hospital about eight weeks, and has been two or three times examined by the clinical class.

The history of his case is briefly as follows: About fifteen months since, while in apparent good health, and engaged in active physical labor, he was taken suddenly with pretty active hæmorrhage from the lungs. This soon ceased, but was followed by some soreness in the infraclavicular region of the left side, and a moderate cough. He suffered, however, but little loss of flesh or strength until about five months later, when he began to suffer more pain and sense of oppression in the upper part of the chest, more severe cough, and some fever.

These symptoms he attributed to a severe cold. In a few days he began to expectorate suddenly a considerable quantity of thick yellow matter, mixed with some curdy substance,

and an occasional mouthful of blood. The cough and purulent expectoration continued several weeks, accompanied by some emaciation and loss of strength, but gradually diminished until they had nearly ceased, when slight hæmorrhage was renewed. From that time he again improved until about two months since, when he was again attacked with pain and soreness in his chest, slight hæmorrhages, and a harsh, severe cough. Soon after the commencement of this attack, and while he was yet spitting up blood, he was admitted into the Mercy Hospital, and came directly under the observation of the clinical class. At that time, though a little thin in flesh, he had none of that pale, cachectic look common to patients suffering from tubercular phthisis, especially after repeated hæmorrhages. His pulse, respiration, temperature, and hue of the skin were nearly natural, and the chest retained its natural shape. Auscultation revealed simply a harsh or exaggerated respiratory murmur over the anterior part of the right side, with entire silence over the left side from the clavicle to the nipple, while over the remainder of the left and the whole of the posterior parts of the chest the respiratory murmur was natural, with now and then a coarse mucous rhonchus. Percussion yielded a clear, pulmonary resonance over all the chest except directly below the left clavicle, where it was entirely dull. The dullness, however, did not exist over half of the space from which the respiratory murmur was excluded, leaving the space from the lower margin of the second rib to the nipple, presenting the rare coincidence of clear resonance on percussion with the absence

*Feb. 17th, on visiting the ward, this patient was found convalescing. The only change in his treatment had been longer intervals between his medicines and more nourishment.

of all sounds in auscultation. Such a coincidence might result from either emphysema of a portion of the lung, or from temporary occlusion of a bronchus. After a careful comparison of the existing symptoms and physical signs with the past history of the case, it was thought that the original hæmorrhage, fifteen months since, resulted from the rupture of a vessel in the apex of the left lung, without any previous tubercular deposits; that extravasation of blood took place at the time into the tissue surrounding the point of rupture, which, during the succeeding five months, underwent first caseous and second purulent degeneration, the latter accompanied by cough, soreness, and finally the copious puruloid expectoration already described. From this circumscribed cavity, thus formed in the apex of that lung, all the subsequent hæmorrhages, and most of the expectoration, have come.

The hæmorrhage which was existing at the time of his admission had again filled this cavity with a fibrinous clot, temporarily preventing the entrance of air into the cavity or the adjacent portion of the lung, causing dullness over the former, and silence without dullness over the latter. He was directed to take a teaspoonful of two parts of fluid extract of hamamelis virginicus and one part of fluid extract of ergot every two hours until the hæmorrhage should cease, and a dose of some anodyne expectorant night and morning to lessen soreness and cough. In twenty-four hours the

hæmorrhage ceased, and the ergot and witch-hazel were given at much longer intervals. In a few days the patient began to expectorate copiously a thick, yellow matter, and to complain of weakness and some sweating at night. At the same time it was found that the respiratory murmur had returned in the upper part of the left side of the chest, except directly below the clavicle, where there was some coarse rhonchus. The ergot mixture was then omitted, and a mixture of extract or syrup of malt and compound syrup of hypophosphites given instead.

For three weeks the patient continued to cough and expectorate freely, considerable quantities of purulent matter, and complained of shortness of breath and soreness at the upper part of the left side. Since then all his symptoms have steadily improved until now, February 12th, he has no yellow or purulent expectoration, only slight cough, and is gaining in flesh and strength. Yet there is dullness below the left clavicle, with a well-marked cavernous sound when the patient takes a full or forced inspiration. He may continue to improve until the injured part of the lung is entirely cicatrized, or he may have a return of hæmorrhage with a renewal of cough and expectoration, at any moment that accidental causes should determine a renewal of fullness of the pulmonary vessels. Careful regulation of diet, and exercise, with mild tonics, constitute the best treatment.

Translations.

PROGRESS OF MEDICAL SCIENCE IN GERMANY.

BY EDMUND J. DOERING, M.D.

RELAPSING FEVER.

DR. LAPTSCHINSKI, who has made a series of microscopical examinations of the blood of patients suffering with relapsing fever, reports among others, the following interesting case, embodying the very important conclusions the author has arrived at, as the result of his investigations.

The patient, a robust, well-developed young man, twenty-one years of age, was admitted into the hospital on the fifth day of the disease, with a temperature of 105.5° in the evening. On the following day, with a temperature of 105° , some blood was drawn by the author, mainly with the hope of finding the *confervæ* discovered by Obermeier in the blood of patients with relapsing fever, for which the author had searched in vain in all the cases examined by him thus far. But again he was disappointed; for neither on this day, nor on the next, nor at any time during the second paroxysm, could he find any *confervæ*.

At the very first examination, the author was astonished in finding not only an enormous increase of the white blood-corpuscles, but also a great accumulation of colorless cells, which could easily be distinguished from the former by their great size and irregular appearance. Some of these cells contained also fatty matter. On the addition of acetic acid, one or

several nuclei, surrounded by granules, could be seen in their interior. These were evidently granular cells from the spleen, which have been discovered previously by Prof. Ponfick in the blood of relapsing fever patients, and have been described by him.

Although the relative proportion of the white to the red blood-corpuscles, previous to the present illness, was not known to the author, still he sees no reason to suspect any abnormal relation to have existed, the patient being a stout, hearty man, never having suffered from any serious illness.

On the eighth day of the disease, the blood-corpuscles were counted, the paroxysm of fever having abruptly terminated the night previous by a copious perspiration, with a fall of temperature from 105.5° to 96° . The proportion was 1 white to 64.3 red corpuscles. According to all appearances, the number of white corpuscles was even greater on the two previous days.

During the apyretic interval, the number of white corpuscles gradually diminished, as was verified by repeated counting.

Thus, on the eleventh day of the disease, the proportion of white to red corpuscles was 1:98; on the thir-

teenth day, 1:119.5; on the morning of the fourteenth day (the relapse commencing in the evening), 1:138.

On the following day, the proportion rose at once to 1:41.2, and remained about stationary (1:50.8 and 1:37.5); falling again with the termination of the paroxysm.

The following table explains itself:

Days of Disease.	BLOOD-CORPUSCLES.		Proportion.	TEMPERATURE.	
	Red.	White.		A.M.	P.M.
8	3219 :	50 =	64.3 : 1	96°	96°
11	3528 :	36 =	98.0 : 1	98.5	98.6
13	3705 :	31 =	119.5 : 1	98.3	98.4
14	4972 :	36 =	138.1 : 1	98.1	103.6
15	5069 :	123 =	41.2 : 1	103.	105.
17	3862 :	76 =	50.8 : 1	104.	104.
18	4430 :	118 =	37.5 : 1	104.	96.
19	4966 :	80 =	62.0 : 1	96.8	98.2
21	4759 :	54 =	88.1 : 1	98.2	98.3
22	5012 :	37 =	135.5 : 1	98.3	98.
24	5006 :	25 =	200.2 : 1	98.2	98.3
26	5195 :	29 =	179.1 : 1	98.2	98.6
28	6613 :	38 =	174.0 : 1	96.8	98.3

The direct microscopic examination, and the repeated counting of the blood-corpuscles consequently proved that a sudden increase of the white corpuscles occurred during the paroxysm of fever, with a corresponding, but more gradual decrease during the apyretic interval.

The author could easily demonstrate by the daily examination of the blood, that the diminution of the white corpuscles during the remis-

sion, corresponded with a decrease of the number of granular cells, but without a corresponding increase of the detritus found in the blood in very small quantities. As transitions from one form into another could also not be detected, the author is at present unable to explain how these granular cells disappear.

During the second paroxysm, these cells re-appeared in the blood in large numbers, gradually disappearing again after the decline of the fever.

At every paroxysm, the spleen was found to be greatly increased in size.

On the basis of these examinations, the author has arrived at the conclusion, that during the beginning of every paroxysm in relapsing fever, the contents of the spleen are discharged into the blood. If at the same time pathological products enter the blood, constituting perhaps the direct cause of the fever, is a question requiring further investigation.

In conclusion, the author states, that so much is certain, that the conservæ are not constantly to be found in the blood, and thus cannot hold any relation to the pathogenesis of relapsing fever. — *Centralblatt f. d. Med. Wissensch.*, No. 3, 1875.

MODERN MEDICAL TREATMENT.—

An editorial article in a British contemporary closes with the following thoughtful words: Our treatment has assumed a character too decidedly stimulant, and not quite sufficiently nutritive. Stimulants ought to be regarded as auxiliaries to nutrition more than they are at present. Nutritive material, as milk, meat-juice, eggs, and various forms of starch, ought to form a greater matter in the dietary of the sick than stimulants, whether nitrogenized or alcoholic; such materials, when assimilated, give

supplies of force. Stimulants may assist in their assimilation, and do so; but in themselves, stimulants only furnish limited supplies of force-bearing material. They are, however, a means by which the system may reach some of its physiological reserve fund. Such use may be advantageous or pernicious, according to circumstances; and an ill-regulated or excessive process of stimulation may give results as disastrous, as a wise and intelligent resort to stimulants may be beneficial in its consequences. — *Phil. Med. and Surg. Reporter*.

Editorial Department.

A MEDICAL COLLEGE IN ASIATIC TURKEY.

THE American missionaries in Turkey are wide-awake men, and the widest awake among them is the Rev. Tilman C. Trowbridge, formerly of Michigan.

Mr. Trowbridge is founding a college or university, called the Central Turkish College, in which a prominent feature is to be a Medical Department. This institution is to be located at Aintab, a city some sixty miles north-east of the north-east corner of the Mediterranean Sea. The following extracts from the writings of Mr. Trowbridge, Dr. West, of Sivas, and Dr. Post, Professor of Surgery at Beirut, show the opinions of the men on the ground:

In connection with the Central Turkey College at Aintab, it is proposed to establish a Medical Department for the thorough instruction of young men in all branches of Medical Science. That such a department is greatly needed, and will be eminently useful, there can be little doubt. We invite attention to the following statement, prepared by H. S. West, M.D., a missionary physician residing at Sivas, Asia Minor. Dr. West has lived in Turkey for the past fourteen years; he has had a most extensive practice, and the best possible opportunities to learn the wants of the country in this respect. He is well known in Turkey and in America as an earnest student and a successful practitioner. Since coming to Turkey, he has performed more than a thousand operations for

the various diseases of the eye; up to January 1, 1872, he had had ninety-nine cases of *lithotomy*. In other branches of medical practice, he has been equally busy. Probably no man in the Turkish Empire is better qualified than Dr. West to give an opinion in regard to the importance of a Medical School in the interior of the country. He has kindly prepared the following statement of the reasons for the establishment of a Medical School in the interior of Turkey:

I. *Destitution of Educated Physicians in Asia Minor*.—With a population of more than ten millions, the country is almost entirely destitute in this respect. There are a few army physicians stationed at various military posts on account of the soldiers. These men receive an imperfect medical education at Constantinople, where there is a Military Medical School. The other medical practitioners are mostly Armenians, who have never received any professional training, except to be initiated into a routine of practice employed by their ancestors for many generations back, consisting mostly of blood-letting and purging. These men are only found in the principal cities. In the hundreds and thousands of villages there are no medical practitioners whatever. There are no surgical practitioners, except *bone-setters*—ignorant men and women who have learned from their ancestors to apply a bandage, but who have not the least

knowledge of anatomy or of any other science. There are also operators for cataract and other diseases of the eye, who travel the country; they perform the old operation of couching. These also, are entirely destitute of education, and know nothing of the eye. The midwives are rude, ignorant women.

II. *Appreciation of Educated Physicians.*—The services of the few European or American physicians, who have been sent out by missionary societies, are eagerly sought, especially in those towns where the people have been accustomed to employ native physicians; and, when the latter have had a very good support, they have shown their preference very manifestly for educated men, and willingness to pay them for their services according to their ability; and whenever medical men have been established, such appreciation has increased from year to year.

III. *Capability of the Natives of Becoming Successful Physicians.*—This has been shown by the fact that some of the leading and most skillful physicians of Constantinople are Armenians, who have been educated in Europe or America; also some American physicians of Asia Minor have trained Armenian students, who have become successful practitioners. The candidates for medical studies would be mostly from among the Armenians. These people, in natural abilities and capability of education, are very little, if any, behind those of the civilized countries of the world. There would also be some candidates from among the Greeks, and occasionally from among the Turks.

IV. *Prospect of Applicants to Enter a Medical College.*—This is shown by

the fact that three medical missionaries who have received students have had many more applications than they could attend to, and the students have paid well, according to their abilities. All classes have expressed a desire for the opening of such a college in the interior.

V. *The Influence a Medical College would have to Commend the Other Departments of College Education.*—The people see and appreciate at once the practical value of a medical education, and thus learn that of other departments of knowledge. The candidates of the Medical Department would be expected also to be graduates from the Academical, and many would go through the latter for the sake of the former. The connection of the hospital would be of great benefit to the community directly, and as a means of medical education.

VI. *The Aid of the Medical School in Carrying Forward the Missionary Work.*—The advantage medical missionaries possess over clergymen in gaining access to the people is well known. The hold they obtain on the community by their professional services enables them to reach the hearts of many inaccessible to others. Earnest Christians, native physicians, who have been educated by the missionary physicians, have been among the most influential auxiliaries of the missionaries in prosecuting their work.

VII. *The Need of a Medical College for the Turkish-speaking Population of Asia Minor* at the present time is apparent from what has been said. It should be added that there is no prospect of institutions for medical education from governmental or other sources for a long time to come. They should now be opened under Christian

auspices. One has already been inaugurated in Beirut, and is doing a good work; but that is for Syria and the Arabic-speaking population. Men are rarely to be found in Asia Minor who can go to Europe or America for medical education. Those who have gone are generally to be found in Constantinople, where there are greater attractions for worldly men. No missionary physicians, with one or two exceptions, are doing anything toward training students, and those who have been trained have been of necessity those who have had but little preliminary education, and will not be able to communicate their knowledge to others. The college will furnish a permanent supply. Taking its candidates from the academical departments, where English as well as other

needful studies are taught, it will train men not only to be physicians, but future teachers of medicine, and thus be a permanent institution for good through future generations. At present there are no professional works in the Armenian and Turkish languages. The students of this college will have access to English books and periodicals, and medical literature will be established also in the languages of the land.

We appeal to the members of the medical profession in England and America for aid in organizing this important branch of the college in Central Turkey. The interests of science and civilization will doubtless be greatly promoted by the establishment of this medical school.

RUSH MEDICAL COLLEGE.

THE thirty-second annual commencement of Rush Medical College was held at Central Hall, corner of Wabash avenue and Twenty-Second street. There was a very large attendance of the friends of the graduating class of 1875.

The exercises opened with prayer, after which Prof. J. W. Freer made a brief speech to the graduates, in which he gave them some fatherly advice, and hoped that their worldly career would be as prosperous as their collegiate experience had been pleasant.

The valedictory, which abounded with the pathetic eloquence characteristic of such efforts, was gracefully delivered by Dr. Henry Fritcher.

Prof. Henry M. Lyman then de-

livered an address, the subject of which was Count Rumford (once Benjamin Thompson), a Massachusetts man who was a Tory in principle, and who went to Europe, where he became a soldier, and subsequently a chemist. In Germany, his great merit won him a Countship—his title being taken from the American town in which he had spent his early days. To Thompson might be ascribed most of the modern improvements in kitchen ranges, furnaces, stoves, and many other things which are concomitants of a high state of civilization. He combined in himself three great essentials to success: energy, culture, and opportunity. He never missed a chance in life, and so made his mark.

The graduating class could only hope for professional success by hard work and the steady development of the talents that were in them.

Diplomas of medicine and surgery were then handed to the seventy-three graduates.

Dr. Ernest Sedgwick, on behalf of

the graduating class, presented Prof. Joseph P. Ross with an elegant gold-headed cane, and an autograph album containing the signatures of all the class—a very beautiful present.

The Professor replied in fitting terms, and, after benediction, the proceedings terminated.

Correspondence.

GENERAL HOSPITAL OF VIENNA.

EDITORS MEDICAL EXAMINER:
The Vienna General Hospital has as usual been filled to its utmost capacity during the winter, and as it contains about four thousand beds, we have had no want of interesting material. The out-door department, the ambulatory service, also furnishes an almost infinite variety and number of patients, particularly in the Eye, Ear and Skin departments; and perhaps I might also add, the Laryngeal department, which, since the time of Turck, is a most important branch in the hospital, and in which several hundred are daily treated. There is scarcely a doubt but that in hospital experience Vienna surpasses the world. The method of instruction is in perfect accord with that which you have so long insisted upon, viz.: bedside observation and examination. Notwithstanding there are a thousand students, there are so many lecture-rooms, and they are arranged in such a manner that each student has abundant opportunity for special examination. Such is particularly the case in the Laryngeal and Ophthalmological wards, where each

student has his own table and light, and makes his examinations and applications under the immediate direction of the Professor or one of his assistants. Each lecture continues from one to two hours, half of the time being spent in examinations, the other half in explanations by the Professor. Hebra, whose name is almost a household word the world over, is as active and interesting as ever. He is punctually at his post every morning at eight o'clock, and has been absent from his clinic but once or twice the entire winter. The last volume of his work on skin diseases is recently published, but owing to its high price, twenty-five dollars (50 fl.), it will not have a large circulation, as the general practitioner and student will prefer some less voluminous work.

The method adopted by Gruber for aural instruction is most excellent. Aside from several large wards, he has a great many out-door patients who come regularly to be inspected and treated by the class, of course under his direct supervision. Each patient is numbered, and a corresponding

number with the characteristic appearance of the *membrani tympani*, is placed upon a blackboard, so that each student cannot fail to fully comprehend the pathological change. In this manner twenty to thirty cases are daily examined. Students are daily called upon to make a diagnosis, and also give explanations of abnormal appearances. Prof. Grüber has recently divined a suction syringe, for the purpose of draining pus from the middle ear, which he considers of the greatest value to the aural surgeon.

He says by means of the air balloon alone it is impossible to empty the middle ear of pus, even if the membrane should contain a large perforation, which is by no means always the case, as the pus is more or less tenacious, and lies at the bottom of the chamber. Then, too, there is always danger of driving the pus into the mastoid cells, where it must excite further inflammation. By the timely use of the instrument, he thinks inflammation of the mastoid cells can often be averted. He generally uses the instrument with the head mirror, so that he can have both hands quite free, the one to use the instrument, the other to adjust the speculum. Scarcely a day passes that he does not demonstrate the value of the instru-

ment and the skill with which he makes use of it.

Much more attention is given to the microscope here than with us. With us students are obliged to understand practical anatomy, and why not also histology? How can they comprehend histology without practical or personal work with the microscope?

Professor Schenk, formerly assistant to Brucke, now professor of Embryology, is the great favorite with American students here who are devoting any time to microscopy, as most of them are. His laboratory, which can accommodate from forty to fifty students, is open from 8 o'clock in the morning until 12 at night, not excepting even Sundays, so that one can easily select the most convenient hours for work. The Professor is untiring in his attention to the students, and is in the laboratory from 9 a. m. until late in the afternoon. Although a young man, he has already created for himself a European reputation in Embryology. Yet, with all his skill, in the earlier stages of embryonic life he is unable to determine the higher from the lower forms of animals, Man and Monkey being quite the same.

LYMAN WARE, M.D.

VIENNA, Jan. 15th, 1875.

HYPODERMIC INJECTION OF ERGOT IN POST-PARTUM HÆMORRHAGE.—Dr. P. C. Williams, of Baltimore, in a paper read before the Medico-Chirurgical Faculty of Maryland, 1874, recommends the hypodermic injection of the fluid extract of ergot in post-partum hæmorrhage. He gives in detail three cases, in which he has found its use most advantageous in

stopping severe flooding. In two of the cases it was not tried until other remedies had been employed to no purpose. The effect of the hypodermic was almost instantaneous, and it was permanent. The fluid was injected in the inside of the thigh, and in no case was an abscess produced. —*Obstetrical Journal.*

Society Reports.

CHICAGO MEDICAL SOCIETY.

REGULAR MEETING, JANUARY 4TH, 1875.

DR. LEE, Chairman of the Committee on Surgery, read a paper on Anæsthetics, and exhibited an Ether Inhaler, invented by Dr. Morgan, of Dublin. The doctor referred briefly to the discovery of ether and chloroform as anæsthetic agents, and gave some results of the investigations of a committee appointed in England some years ago, to report on the relative merits of the two agents. The primary action of both is stimulating; the secondary, depressing — ether stimulates the respiratory, chloroform the circulatory functions. Ether is safer, though slower in its action. Out of 92,815 administrations of ether, there were 4 deaths. From 152,000 administrations of chloroform, there were 84 deaths; while in 5,588 inhalations of a mixture of the two, there was one death.

Dr. Andrews, of this city, had reported that chloroform was eight times more dangerous than ether, and twice as dangerous as a mixture of chloroform and ether.

In the use of ether, the stages of anæsthesia are better marked; the patient coming more gradually under its influence, giving a better opportunity to observe the symptoms of danger. The manner of administering has much to do with the safety of the agents. American surgeons advocate the use of ether more now than form-

erly, though many still advocate the use of chloroform, believing it to be safer and better for the patient, claiming that there is only danger in certain cases owing to idiosyncrasy and careless administration. In illustration of the peculiar effects in certain cases, a case was related in the doctor's own experience. The patient was to be operated on for Strabismus. Chloroform was inhaled, when the heart's action became so violent, he had to desist. About a year afterwards, ether was administered, and the patient came readily under its influence without any untoward symptoms. In cases of nervous shock, ether stimulates when properly used, and do not believe it can be used too soon in these cases.

Chloroform is better borne than ether by patients under five years old. Once administered chloroform to a young woman in confinement, at intervals, for five hours, with good results. Years afterwards, had occasion to use it again for purposes of extracting a needle from this same patient. Respiration became suspended, and it was with difficulty re-established.

Ether had been used for a long time in the north of Ireland, as an intoxicating agent—from two to four drachms being taken at a time, two, four, or six times daily. It acts very

much like alcohol; thinks it is eliminated by the lungs: does not cause any peculiar evils, and is less dangerous than whisky. Three gallons of ether has the intoxicating effect of ten gallons of whisky.

Here the doctor exhibited the inhaler, and explained its use and advantages. It is a tin can with an elastic diaphragm. A flexible tube connects the can with the mouth-piece, the aperture of which is surrounded by an elastic air-cushion, which prevents the patient from breathing any air, except what may be in the can with the ether.

Has used the inhaler some twenty times, and claims for it besides perfect safety, two great advantages:

1st. The ease and rapidity with which anæsthesia can be produced—the limits of time being one and a half minutes and ten minutes; average time, about four minutes.

2d. The small quantity of ether required; a few drachms generally being sufficient.

Was at Mercy Hospital when one pound of ether had been used without effect. The inhaler was applied, and one ounce of ether produced insensibility.

In the discussion of the paper, Dr. T. D. Fitch said he was much interested in the subject. He believed that death always commenced at the lungs, as the heart generally beats fifteen or twenty minutes after respiration stopped. While in the army, and for a long time after, he was a firm believer in chloroform—believed it safer and better in the long run than ether. Changed his opinion since he lost a patient some five years ago. There is less immediate danger in ether. Thought the reason why

chloroform was not dangerous in parturition, was owing to the fact that pain was present, and that the patient was not frightened. One objection against ether, however, is the poisonous effect on the blood, as sometimes shown in slow recoveries after its use.

Dr. C. M. Fitch asked, if it was not probable that the fatal result in Dr. T. D. Fitch's case, was due to paralysis of the pneumogastric nerve, death not beginning at either lungs or heart? He knew patients could be restored where death was imminent from use of chloroform, by suspending them with head downwards. Mice could be restored by suspending them by the tail.

Dr. Paoli had used ether in two cases of labor, in both of which the pains were suspended; now uses chloral hydrate in forceps cases. It renders patient insensible, but does not suspend labor.

Dr. Quine considered there was a radical difference in the mode of operation of the two agents.

Dr. Ingals related a case of a death from chloroform which occurred to him. An apparently strong, healthy woman, struggled during the administration. The pulse ceased before respiration. Post-mortem showed a fatty heart.

Dr. T. D. Fitch asked for the experience of members present in the use of anæsthetics in Parturition. Do they hasten or retard labor? He considers that they always diminish the pains, and that after the expulsion of the child, the uterus does not contract so well, they rendering the patient liable to hæmorrhage.

Dr. Adolphus never uses them—always gives morphia when there is need of anything which increases the

contractions of the uterus, diminishing the irritability, rendering the pains more efficient.

Dr. Graham exhibited to the Society, two kidneys taken from a subject in the dissecting room. The right one was very much enlarged. In the left, there was almost complete atrophy of the parenchymatous substance; and instead, there were several large pockets distended with purulent fluid. In one of the pockets there was a small calculus, adherent to the mucous membrane; and in the pelvis of the organ, there was a large calculus, with a process extending into the ureter, completely occluding it.

Dr. Quine had seen the patient before death at the hospital, and he was asked to give the history of the case as far as he knew it. He stated that he had seen the patient but once, and she was then moribund from puerperal fever. She had been confined in the hospital; but since her admission, there had been no symptoms of any renal disease. At the autopsy, there was found extensive peritonitis. The pericardium was found distended with fluid. Purulent fluid was also found in the pleural cavities. The immediate cause of death was apparent, and for that reason the kidneys had not been examined.

Gleanings from Our Exchanges.

DIPHTHERIA AND SCARLATINA.

By D. H. HAYDEN, M.D.

From the Boston Medical and Surgical Journal, February 11, 1875.

DURING an epidemic of diphtheria in the spring of the present year, Dr. G. Mayer, of Aix-la-Chapelle, treated sixty cases with the continuous use of ice and ice-water.* From most remedies recommended as specific, the author had previously seen little if any result. Of all internal remedies, chlorate of potash in large and frequently repeated doses appeared to be the most effective, prescribed as follows for a child five years old:

Potassæ chloratis,	8 parts.
Aquæ destillatæ,	225 parts.
Syrupi rubi idæi,	25 parts.

Dose, one dessert-spoonful every hour, day and night.

He recommends, however, as by far the surest remedy, in a large majority of cases decidedly life-saving, the continuous use of ice internally, day and night. Of the sixty cases thus treated, only one died—a boy five years old, the disease having extended to the larynx very soon after its commencement. Tracheotomy prolonged life four days without saving it; the operation during this epidemic, when performed, being followed by good results in only a small percentage of the cases.

In the above cases, small pieces of ice were placed in the mouth and allowed to melt, and the operation was repeated uninterruptedly day and night for the first two or three days,

* *Jahrbuch für Kinderheilkunde*, N. F., vii Jahrgang: 4 Heft,

in the worst cases for a longer time; also as often as possible the patient was given ice-water to drink in greater or less amount. Even with infants eight or ten months old, it is easy to administer ice-water in teaspoonful doses, and the author saw, in the case of a child nine months old, where the mother repeated this operation every two minutes during the whole of the first night, on the second day, a decided diminution of the fever and restriction of the local symptoms. The drinking of ice-water has a more decided action than the swallowing of ice in cooling the pharynx. The children generally make great resistance to drinking so frequently, especially during the night—yet by sufficient perseverance on the part of the attendant, it can be carried out regularly and continuously for the first two days. The drink can be made more palatable by the addition of sugar, or of raspberry or lemon syrup; in some cases also, by adding red wine. The ice should be pure, and when such cannot be obtained, the vessel containing the water should be placed in a mixture of salt and ice, and thus lowered to the proper temperature. When there was much swelling of the glands of the neck, ice-bags were applied in the form of cravats, though the occasions requiring this were rare. It was not uncommon with the above treatment to see decided improvement in the local appearances on the second day, and in bad cases the fever did not last longer than from five to seven days; whereas, by other methods of treatment, especially with cauterizations, the course of the disease was often slow, dragging on for a long time. When improvement begins, generally after two or three days, the child may be allowed to rest at night, but ice should then be given whenever he wakes up. The great advantage of this treatment consists in its preventing the extension of the diphtheritic inflammation especially into the larynx, in the rapid spontaneous loosening of the already formed membrane, in the rapid diminution of

fever, and in the prevention of blood poisoning. Cauterizations are condemned as increasing the inflammatory swelling of the mucous membrane, endangering extension into the larynx, and, by opening blood-vessels, favoring blood poisoning. The author does not claim that this treatment is original with him, but thinks that hitherto its advantages have not been sufficiently emphasized and proclaimed.

There was a still greater need of the use of heat-extracting methods of treatment during an epidemic of scarlatina, which had prevailed in Aix-la-Chapelle since the summer of 1873, and which was not yet over at the time of writing this article. The epidemic was not a malignant one—the disposition to sequelæ was small, and cases of extreme malignancy such as were common during the epidemic of 1864, when death ensued in the first stages with symptoms of coma and convulsions, and a temperature of 41° C., were very rare. Of forty-nine cases treated, only three had swelling of the face, and moderate albuminuria (catarrhal nephritis) which passed rapidly away without any further bad results. Baths of cool water were used in eight cases; of these, one died and the others recovered. Of the seven that recovered, œdema of the face made its appearance in one, a young girl five years old, which rapidly disappeared; in a girl two years old, there was an otitis externa and adenitis submaxillaris which suppurated; there remained at the time of writing, two months afterwards, an otorrhœa which was gradually diminishing. Baths were used generally when the temperature in the axilla reached 40° C., especially if at the same time there was violent delirium, or if a tendency to coma or convulsions showed itself. When the baths were once begun, the temperature was taken every three or four hours during the day, and a bath was given as often as it reached 39.5° or even 39° C. These baths were given at 27° , gradually cooled to 22° or 21° R. and, where the

temperature was very high, to 18° R. Their duration was ten minutes. From this treatment the author saw great benefit. The subjective symptoms of the patient were much alleviated, and the lowering effect upon the temperature lasted several hours. Inunction of lard was as a rule made daily, with great relief to the itching of the skin. Ice-bags were kept continuously applied the first few days, rendering good assistance. Ice and ice-water, in accordance with the method already described, and also chlorate of potash for several days, were used in all cases, in those treated with baths as well as in those less sick, as nearly all showed more or less diphtheritis faucium. Otherwise, except in a few instances, where on account of the continuous high temperature, quinine was administered in large doses at evening, very little medicine was given. In urgent cases where quinine is indicated and the patient cannot swallow, it can be given subcutaneously; under such conditions the author recommends trying camphor injected hourly. In one instance of lung paralysis, he saw the best results follow the subcutaneous injection of benzoës. The temperature of the room when possible was kept regulated at 10° - 12° R., during the first days; later, when the fever diminished, at 14° - 15° R.

THE WET SHEET IN SCARLATINA.

Dr. Taylor * thinks that the above "simple, powerful, and ready-at-hand auxiliary" in the treatment of scarlatina, is not properly appreciated by the profession. An experience of forty years has served to assure him "that this plain or medicated vapor-giving envelope affords the best external means for eliminating scarlatinal poison and preventing destructive sequelæ." It promptly suppresses

pyrexial heat and itching; produces more or less continuous sleep, with a soft, secretive skin; and enables the digestive organs to accomplish the great desideratum in scarlatina, namely, absorption of highly nutritious food. It may be repeated on the recurrence of the febrile paroxysm two, three, or four times in twenty-four hours, the patient remaining enveloped from half an hour to an hour. Mothers and nurses who have witnessed its efficacy are most earnest for its repetition. His plan of procedure is to immerse a night-gown, slit up at the front, in hot water (half a pint to a pint), pure or medicated, with a drachm or two drachms of tincture of capsicum, or in the infusion of three or four pods; or in mustard-water, the clear, supernatant fluid from a tablespoonful of mustard to a pint of water; extending the gown over the feet by means of a towel immersed in the same fluid, both to be well wrung out and suddenly applied, and the patient quickly packed in two blankets previously placed on the adjoining sofa or bed; another blanket, or two pillows, or an eider-down quilt, covering all.

The medicated packing is preferable in the incipency, and at any other time to evoke the rash, and in cases of cerebral oppression, with pale skin, low pulse, and delirium.

The auxiliary mode of treatment here defined, is by no means intended to exclude the ordinary plan which every practitioner's experience has led him to select and to rely upon; but the author believes that if packing is judiciously incorporated with such reliable treatment, it will be the means of saving many lives that would otherwise be lost, and of diminishing the severity and duration of the sequelæ.

THE ACTION OF QUININE.—Dr. W. A. Hammond, of New York, has published in the *Psychological and Medico-Legal Journal*, which he edits, an account of some experiments which go

far to overturn the notion that quinine produces anæmia of the brain, and to establish the converse—viz.: that this drug really produces cerebral congestion. This is a very important point in reference to our daily practice.

* *Lancet*, November 14, 1874.

TWO CASES OF POST-PARTUM HÆMORRHAGE TREATED BY THE INJECTION OF PERCHLORIDE OF IRON.

By. W. P. SWAIN, F.R.C.S.

From the Obstetrical Journal of Great Britain and Ireland, Jan., 1875.

WITHOUT wishing to fan into a flame the dying embers of controversy on the subject of the injection of perchloride of iron in post-partum hæmorrhage, I desire to put on record the two following cases which have occurred in my practice during the last six months:

CASE I was that of an exceedingly fine, handsome lady, a primipara. Her pregnancy had been uninterruptedly good. Labor commenced on the evening of January 21st. The presentation was normal, the pains good, and a fine male child was born about half-past seven on the morning of the 22d. I gave a small quantity of chloroform at the last. Immediately after the delivery of the child, I found a second head presenting, and, as the pains were not very expulsive, I put on the forceps and delivered a second male child in a few moments. I then removed the placenta, which was single and of enormous size. Considerable hæmorrhage occurred at the moment the placenta was expelled, but the womb contracted firmly, and a binder was put on. Within a few minutes, however, I found the uterus largely expanded, and, on pressure, a huge clot was expelled. I immediately introduced my left hand into the uterus, making pressure externally with the right, but was unable to produce any uterine contraction. During the whole time there was a constant and excessive flow of blood from the vagina, and the patient became collapsed. I administered brandy in large quantities and ergot, and the moment ice could be obtained I placed a large lump in the cavity of the womb, and a bag of ice on the abdomen. All was, however, of no avail, and my hopes of saving the patient were at zero. In the meantime I had obtained

further professional assistance, and, with the concurrence of my father and Mr. Whipple, I injected perchloride of iron into the uterus, in the manner advised by Dr. Barnes. From the moment of the injection all flow of blood ceased, although the uterus remained for some time flaccid. The lady made an excellent recovery, and, with the exception of a little lymphatic tenderness in the right thigh, complained of nothing during her convalescence. I should mention that on the second day, and on every succeeding day for some time the vagina was thoroughly well syringed out with Condy's fluid and water.

CASE II.—I was asked by Surgeon-Major Ferguson to see at the Woman's Hospital, on July 9th, a soldier's wife in her third pregnancy. She had a contracted pelvis in its antero-posterior diameter. In her first confinement she remained a hundred and eight hours in labor; in her second, eighty-seven hours. No instrumental assistance was afforded on either occasion, and the children were still-born. This time she had been in labor sixty hours, and I found the head well down on the pelvis, but tightly fixed there. I suggested the application of the forceps, and in a very short time, after the use of considerable traction, the child was born alive, but lived only for half an hour. The placenta was removed at once without difficulty, and the uterus contracted for a short time, but in a few moments tremendous hæmorrhage set in, the blood being projected from the vagina on the floor some distance from the bed. I immediately passed my left hand into the uterus, cleared out its contents, and endeavored to secure contraction, whilst cold water was poured on to the abdomen from a

height, and brandy freely administered. This, however, did not correct the bleeding, although it somewhat lessened in quantity. Feeling that another gush of hæmorrhage might be fatal, I injected the perchloride, all the materials being fortunately at hand. The uterus at once contracted, all hæmorrhage ceased, and I hear from Dr. Ferguson that the woman has made an admirable recovery.

I think I may fairly claim two lives

for the perchloride treatment. In the first case, all the usual resources, excepting galvanism, were tried in vain; the lady lay dying before our eyes, and there can be no doubt that any further hæmorrhage must have turned the balance against her. In the second case, so rapid and so large was the loss of blood, that nothing short of *immediate* arrest could have saved the patient; and this the perchloride certainly effected.

DR. RICHARDSON ON THE EFFECT OF BLOOD-LETTING IN ECLAMPSIA.—

On May 29, 1873, Mr. Burton, of Richmond-Terrace, West Brompton, summoned me to see a lady whose symptoms were nearly the same as in the case described above (eclampsia). In this lady the most marked peculiarity of the labor, so Mr. Burton told me, was the excessive discharge of amniotic fluid. After delivery she became comatose, insensible, and vehemently convulsed. Her face was congested, her veins tense, her pupils fixed, and her temperature high, 103° Fahr. Before my arrival the patient had been bled freely from the arm, and the more alarming symptoms had subsided; but the jugular veins were still tense, the temperature was 102° Fahr., and the unconsciousness continued with an occasional convulsion. Confirming fully the treatment that had been pursued, I recommended the abstraction of still more blood by leeches, together with continued application of a collar of ice around the neck. I learned afterwards from Mr. Burton that the amendment in the symptoms continued, and that recovery took place without any interruption. Mr. Burton was so good as to take me to see this patient a few months ago. I found her quite well, and I could gather nothing from her that could lead to the remotest suspicion of her having suffered one single harm from the remedy which, I am morally sure, saved her life.

NOTE.—The phenomena of coma and convulsion after labor, in cases such as are here described, are, I be-

lieve, phenomena of uremia. The symptoms are identical with those of uremic coma, and the cause is not far to seek. The kidney, subjected to intense pressure during the latter term of pregnancy, is suddenly relieved by the escape of the excessive amount of amniotic fluid and birth of the child. Thereupon into the half-paralyzed vessels of the kidney there is an influx of blood, a temporary but effective congestion, and a state of things analogous to that which occurs when the nervous supply of the kidney is divided. The effect of the abstraction of blood in this condition is to afford immediate relief to the congestion of the vessels, to enable the kidney to resume function, and to let the order of the economy proceed.—*Obstetrical Journal*.

COPAIBA IN DROPSY.—Dr. Falconer (*Canada Lancet*, Dec., 1874) feels confident that very few practitioners have given this drug a fair trial in ascites. Passing by cases of cirrhosis and chronic peritonitis, with their accompanying effusions, in which, after re-accumulation after tapping, he has succeeded in not only diminishing but in completely removing the fluid by the use of copaiba, he refers to a case of ovarian dropsy, which he treated successfully by the drug. Copaiba is the diuretic, par excellence, and never fails in removing the serum through the kidneys, except in chronic albuminuria. It obviates the use of elaterium or gamboge, tapping or ovariectomy, in many cases.

CHLOROFORM IN CONGESTIVE CHILLS.—Dr. R. K. Hinton writes to the *Philadelphia Medical and Surgical Reporter*, as follows :

I have been in the habit of using chloroform in the cold stage of congestive chills, and also ordinary intermittents, for several years past, and have never found anything that would bring on reaction more speedily. The following case which I transcribe from my case-book, will show its effects :

On the fifth of July, 1874, I was called in haste to see Patrick O'Connor. The messenger informed me that he was laboring under his third sinking chill. On my arrival, I found my patient pulseless at the wrist; feet and legs cold; constant nausea and vomiting; had had two attacks of syncope; in short, I supposed my patient would never react. Sinapisms were applied to the stomach and epigastric region, and the extremities rubbed with liquid ammonia. Hot baths could not be used, owing to syncope coming on immediately on attempting to raise him up. I immediately put him on six drop doses of chloroform in sweetened water, to be repeated every fifteen minutes. After taking the second dose, he was much better; pulse returning at the wrist; nausea and vomiting entirely stopped. In one hour from this time, reaction was entirely established; the fever soon passed off; and after the free use of quinine, he had no return of the chills.

Remarks.—As I before said, I have been in the habit of using this remedy for several years past. The first case was a negro boy, who was laboring under his second chill. He had obstinate vomiting; the whole array of remedies was brought to bear in this case, but to no purpose. Chloroform was substituted, and in a comparatively short time reaction was fully established.

It appears to fulfill the following indications: 1. It allays nausea and vomiting. 2. It allays the pain in the stomach. 3. It equalizes the circulation. 4. Reaction is never excessive

after its use. I have used chloroform in the hot stages of intermittent, and with the happiest results. It appears to allay nervous excitement, and by so doing, quiets the heart's action. I have also used it in the treatment of pneumonia, in from five to ten drop doses every two hours. It allays the cough and all nervous excitement, and appears to cool down the fever.

THE ANTIPHLOGISTIC ACTION OF CARBOLIC ACID.—Professor Hueter, of Greifswald, in a report to the Third Congress of the German Surgical Society, read a paper on the antiphlogistic action of parenchymatous injections of carbolic acid. He has used this treatment with success in white swelling of the joints, in subacute inflammation of the lymphatic glands, in acute phlegmonous inflammations, and in traumatic erysipelas. The injection fluid consists of a two per cent. watery solution of carbolic acid. This strength may, however, be increased. Two grammes may be injected at one time.

Hueter has also employed this treatment in commencing inflammation of the bones, before suppuration has begun. He recommends the injection of one or two drachms of the mixture into the medullary cavity, the softened cortical substance presenting no material resistance to the point of the needle. This same solution he has employed for the radical cure of hydrocele, injecting about seven grammes into the tunica vaginalis. Here, as in the other cases, the carbolic acid injections show their anæsthetic action, very little pain being caused by the process and no pain following it. In applying this method of treatment to tumors he had no success in the case of lipomas and sarcomata. He succeeded in reducing the size of soft fibromata and myxomata; scirrhous nodules became smaller and painless, and epithelial ulcers were changed into healthy, granulating surfaces.—*Boston Medical and Surgical Journal*.

THE PHYSIOLOGY OF VOMITING, AND THE ACTION OF DRUGS UPON IT.—Dr. T. Lauder Brunton, the present editor of *The Practitioner*, in a highly interesting article on the above subject, submits the following conclusions:

(1.) Vomiting consists in two factors, viz., (1) the simultaneous compression of the stomach by the abdominal muscles and diaphragm; and (2) the opening of the cardiac orifice by the contraction of the longitudinal fibres of the œsophagus.

(2.) When innervation is disturbed, these two factors do not occur together, and thus retching may occur without vomiting.

(3.) The movements of vomiting are correlated by a nervous centre in the medulla oblongata, from which impulses are sent down through various motor nerves to the muscular structures engaged in the act.

(4.) This nervous centre is probably closely connected with the respiratory centre, but is not identical with it.

(5.) It is usually set in action reflexly by irritation of the pharyngeal, gastric, hepatic, enteric, renal, uterine, ovarian, and possibly also by the pulmonary and vesical nerves which come from the periphery towards it. It may also be excited by impressions sent down to it from the brain.

(6.) Vomiting may be arrested in two ways, either by removing the irritant which is exciting the vomiting centre, or by lessening the excitability itself, so that the centre no longer responds to the impressions made on it from without.

(7.) Emetics may be divided into two classes: those which act only on the stomach, and those which act on the vomiting centre also.

(8.) Tartar emetic probably acts in both ways. Tolerance of it is probably due to want of hydrochloric acid in the stomach.

(9.) Emetics may be used to evacuate the stomach and duodenum. They thus remove irritating matters, poisons generated in the stomach by putrefaction, bile, and metals or fever

poisons circulating in the entero-hepatic circulation.

(10.) They may be also used to empty the bronchi and gall-bladder, or to cut short epileptic, and to prevent ague fits.—*The Practitioner*, December, 1875.—*N. Y. Med. Record*.

INFLUENCE OF NUTRITIVE CHANGES AND EXTERNAL CIRCUMSTANCES IN THE PARENT UPON THE DEVELOPMENT OF SCROFULOUS CHILDREN.—In a recent address by Dr. Evory Kenedy, before the Dublin Obstetrical Society, the proposition was put forward that scrofula is affected by the surroundings and circumstances which modify the human organism, his views being founded upon the fact that "all organizations are not merely variable, but varying." The following case was mentioned as an interesting illustration of the manner in which external circumstances may lead to the production of those modifications of the human organism, which we collectively term "scrofula," and of a return to the normal condition when the circumstances which had produced the changes had passed away. A peasant, whose family was liable to scrofulous modification, as seen markedly in his sister and her family, married a woman free from any taint of scrofula, and had two children, who presented none of the characteristics known as scrofula. After their birth, the father had an attack of rheumatic fever, which left him with an injured heart, and consequently in straitened circumstances from his crippled condition as a bread winner. During this period of nipping poverty, two other children were born, whose clumsy fingers, thick joints, tumid alæ nasi and upper lips, together with a strong tendency to glandular enlargements, mark the scrofulous diathesis. After this time, the mother had an annuity left her, which once more placed them in comparative plenty. Two more children were born, approaching the healthy type of the two eldest, and comparatively free from the characteristics of

the middle pair. When the family are gathered together, the history of the married life of the parents can be read in the physiquos of their offspring.—*Br. Med. Jour.*—*N. Y. Med. Record.*

ABSENCE OF THE FETAL PULSE DURING EXTRACTION BY THE FEET.—Professor Dohen, of Marburg, reports* two cases where, during an extraction by the feet, the foetal pulse ceased for a considerable length of time, and yet with no fatal result to the child. In both cases the pelvis was contracted, and the pulse was distinctly felt to cease beating as the aftercoming head descended into the pelvis. In the first case the cardiac pulsations were suspended for at least two minutes, and in the second case for more than three minutes. In the first case the baby, a girl, was reanimated in a warm bath after about a quarter of an hour's effort; but in the second case the measures to resuscitate the infant, a boy, were continued for half an hour before the frequency of the inspiratory and pulse movements became normal.

Professor Dohen considers that the arrest of the heart in these two cases was due to the compression of the brain and irritation of the pneumogastric. In cases where the arrest of the heart's beat is due to asphyxia, there is but little hope of saving the child's life; but where the action of the pulse is slackened or arrested by compression of the brain, a rapid extraction of the head will usually be sufficient to save the life of the infant.

These views are strictly in accordance with the theory of Leyden,† who has shown that the compression of the brain which slackens the heart's beats may also completely arrest them, and that this action is produced by the help of the pneumogastric.—*Boston Med. and Surg. Jour.*

* *Obstetrical Journal of Great Britain and Ireland*, January, 1875, from *Archives de Tocologie*, October, 1874.

† *Virchow's Archiv.*, xxxvii., 4.

RHEUMATISM.—Dr. T. S. Dowse, in a paper read before the Norwich meeting of the British Medical Association, and published in full in the *Journal*, says that in the treatment of rheumatic fever the first thing to do is to eliminate the acid products of the diseased state; and the next, to relieve pain. To bring this about, he has for the last three years been in the habit of packing most of his cases in a wet blanket, and then rolling them up in dry blankets, so as to promote profuse sweating, and also increase the temperature. Finding this rough method gave good results, he at once adopted a systematic mode of procedure, which he thus describes: The bed is covered with india-rubber sheeting; over this is laid a blanket which has been wrung out of hot water. The patient is then enveloped in the blanket, and covered with six folds of dry blanketing. By this the temperature is raised, and profuse sweating results; the former, if need be, is assisted by the administration of brandy in half-ounce or ounce doses every hour, and the latter by giving freely warm milk and water. If the temperature exceed 102° F., then the stimulant is unnecessary.

Dr. Dowse continues the treatment for three days. He finds that after the third pack the pain has completely subsided, and the sour taste usually disappears.

We may remark that this method of treatment is by no means new.—*The Doctor.*

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